94th Congress
2d Session

COMMITTEE PRINT

ISSUES CONCERNING THE TRANSPORTATION OF ALASKAN NATURAL GAS

QUESTIONNAIRE

PREPARED FOR THE

COMMITTEES ON INTERIOR AND INSULAR AFFAIRS

AND

COMMERCE UNITED STATES SENATE

JANUARY 1976

U.S. GOVERNMENT PRINTING OFFICE
65-042 WASHINGTON : 1976

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MEMORANDUM OF THE CHAIRMEN

In February 1976, the Senate Committee on Interior and Insular Affairs and the Senate Committee on Commerce will conduct joint oversight hearings on Arctic natural gas reserves and alternative transportation systems for delivery of this gas to markets in the lower 48 states. The Committees will examine the institutional, resource and other factors which may constrain or significantly influence the cost, timing and mode of delivery of this natural gas into existing distribution systems.

To facilitate our respective Committee's consideration of this matter and to develop a factual background on the major policy decisions respecting Alaska gas, interested persons are invited to respond to all or any of the attached questions by February 11, 1976.

Materials submitted will be included in the hearing record on this matter.

HENRY M. JACKSON,
Chairman, Committee on Interior and Insular Affairs.
WARREN G. MAGNUSON,
Chairman, Committee on Commerce.

I. ASSESSMENT OF NATURAL GAS SUPPLIES

A. Natural Gas Supplies

(1) What are the current estimates of proven reserves in:
(a) the Sadlerochit formation of the Prudhoe Bay field,
(b) other formations in the Prudhoe Bay field,
(c) reserves elsewhere in Arctic or Interior Alaska, or on the Arctic OCS, and
(d) the Mackenzie Delta and adjacent Canadian onshore and offshore areas.

(2) What additional reserves can reasonably be expected to be discovered and produced from each of these areas by 1985?

(3) What is the range of uncertainty and/or dispute in each of the estimates in questions 1 and 2 above:
(a) resulting from geological or engineering uncertainty,
(b) depending on leasing or resource development policies, or
(c) resulting from uncertainty about other factors (economic incentives, industry response, logistical problems, etc.)?

(4) What are the potential natural gas resources in each of the areas identified in question (1) and the likelihood of their producibility in volumes which could influence the viability or relative merits of alternative systems for delivery of Prudhoe Bay natural gas?

(5) Consider specifically what leasing or development policy regarding the Alaska outer continental shelf, Naval Petroleum Reserve No. 4, the Arctic Wildlife Range, state lands and lands controlled by Alaska Native corporations might be necessary to make viable various alternative transportation systems? Consider also the possibility of major discoveries in Lower Cook Inlet, the Gulf of Alaska, or other areas of Alaska, and their implications for the viability or merits of alternative transport systems?

B. Deliverability and Cost

(1) What levels of natural gas production could each of the areas considered in subpart A above reasonably be expected to support in each year 1980 through 1985, if transportation were available, given due allowance for the time necessary for field development?

(2) What is the range of uncertainty or dispute over each of these estimates? Consider particularly the relationship between crude oil recovery and natural gas production from the Prudhoe Bay field.

(3) The Van Poollen study for the State of Alaska implies that the potential tradeoff between gas and oil production from the Sadlerochit formation will not be known until

(a) tests have been made of the ability to inject water into the reservoir and a source of water has been assured, and

(b) the operation of the aquifier underlying the reservoir has been observed during oil production.

Is this inference correct? If not, can the optimum rate of gas production presently be calculated? If so, what is it? If the inference is correct, when are the earliest and latest dates that enough information might be available to make a prudent decision on the rate of gas production and the system to transport such natural gas

(4) (a) What is the statutory mandate and policy of the oil and gas conservation authority in Alaska with respect to optimizing the joint production of oil and gas?

(b) To what extent is there a requirement or authority for the agency or the State to consider economic or development factors (as opposed to physical conservation alone) in regulating field production levels?

(5) (a) Could the rates of production at Prudhoe Bay now contemplated by the applicants in Docket CP–75–96 before the Federal Power Commission be appreciably reduced by actions of the State of Alaska?

(b) When will the Alaskan conservation agency decide on the allowable rate of natural gas and oil production?

(c) Can its initial decision be later modified?

(d) Is there a conflict between the FPC's certificating authority and the State's conservation authority? If so, which authority would prevail?

(6) What is the anticipated cost (not necessarily equal to price) of Prudhoe Bay natural gas at the wellhead? Please supply the assumptions and detailed back-up for such estimates. Specifically:

(a) Are these calculations incremental costs, assuming that all joint costs of lease acquisition and field development are borne by oil production, or do they assume an allocation of such joint costs to gas production; and

(b) Does the cost estimate include the value of oil production forgone, if any?

II. DEMAND FOR ALASKAN NATURAL GAS

A. Anticipated Shortages

In the absence of the Alaskan gas, what are the anticipated natural gas shortages in the lower 48 states by region in the 1980–85 period?

(1) Which pipelines are expected to be in deepest curtailment of priority users in that period? What is the range of uncertainty associated with these estimates?

(2) What is the anticipated intrastate demand for natural gas in Alaska during the 1980–85 period?

(a) How much of the Prudhoe Bay gas is planned to be consumed in Alaska?

(b) To what extent do these projections of Alaskan consumption assume natural gas use for boiler fuel and other uses for which oil or coal could be substituted?

(c) How much do these estimates vary with different assumptions concerning natural gas and oil prices?

(3) Which pipelines or distributors have options to purchase Alaskan natural gas at this time?

(a) Would the same piplines and distributors obtain Alaskan natural gas regardless of whether the Arctic Gas or the El Paso project are approved?

(b) What are the terms and conditions of these options to purchase?

(c) If Prudhoe Bay gas were to be sold to the pipeline systems in greatest need on the basis of the best current projections pursuant to the FPC's current curtailment policy, which pipelines would receive the gas and what quantity would be sold to each?

(d) On what terms would non-transportation system owners have access to the Alaskan gas transportation system?

(4) The State of Alaska has not yet committed its royalty share of the Prudhoe Bay gas to sale or options. Will the State's decision regarding disposition of its royalty gas (a), between interstate and intrastate purchasers, or (b) among interstate purchasers, significantly influence the viability or the FPC's evaluation of alternative transportation systems?

B. Price

(1) Is the demand for Alaskan natural gas sensitive to natural gas prices and to the price of alternative fuels in the lower 48 states?

(2) When do the producers and purchasers intend to enter into firm long-term contracts for the sale of the Prudhoe Bay natural gas?

(a) What is the reason for the delay to date?

(b) What price will the producers receive in the absence of FPC price controls?

(c) What will be the duration of the sales price?

(d) What are the other likely major terms of such contracts?

(3) For the two transportation systems proposed by the applicants and the modifications recommended by the FPC environmental staff, what are the anticipated:

(a) capital costs (in 1975 dollars);

(b) the initial total transportation tariff per Mcf delivered to points on the West Coast, in the Midwest and in the East; and

(c) the total transportation tariff per Mcf delivered to such destinations 15 years after initial delivery?

(4) Are current estimates realistic in light of the large cost overruns that recently have characterized major construction projects like the TransAlaksa oil pipeline, the Washington Metro or nuclear generating plants? To what extent do the current cost estimates take into account the likelihood of materials shortages, failure to perform by certain contractors, defects or late delivery of equipment, labor disputes, unusually severe weather, regulatory delays, etc.? If the experience of the Alaskan oil pipeline and all these factors are taken into consideration, what is the magnitude of total system costs (in both current dollars and 1975 constant dollars) that conceivably could be expected?

(5) To what extent does transportation at each system's design capacity depend upon additional discoveries of new reserves? What is the range of anticipated total capital and operating costs per Mcf at various levels of throughput?

6. (a) What is the size of the market for Alaskan gas in the lower 48 states if its average lower 48 city gate price (in constant 1975 dollars) is $2.00 per Mcf? $2.50 per Mcf? $3.00 per Mcf? $4.00 per Mcf? $5.00 per Mcf? What is the assumed oil price in these estimates?

(b) At each average price what portion of the total gas over the course of a year would be consumed by priority users, (residential and commercial) and at what price; and what portion would have to be sold for boiler fuel or as interruptible supply, and at what price?

(7) What would be the impact on demand for Alaskan gas if its price at the city gate were substantially higher than the equivalent average price of oil? At what price per Mcf would pipelines no longer be willing to purchase Alaskan gas? What is the probability and under what circumstances, taking into account production costs, all tariffs

and taxes, that the price of Alaskan gas would exceed the amount purchasers are willing to pay for an equivalent volume of base load supply?

Please provide the estimates requested in questions (6) and (7) on the alternative assumptions that Alaska natural gas is required to be priced (1) incrementally or (2) on a "rolled in" basis.

C. Cost of Delay

(1) What revisions must be made in project costs for each year of delay (up to five years) in the commencement of construction?

(2) What is the best estimate of the total cost to consumers for each year of delay beyond 1980 in terms of the price of alternative fuels or impact on the economy of a gas shortage?

III. STATUS OF REGULATORY APPROVALS

A. Agencies Involved

List all of the Federal and state agencies which must issue permits or approvals as a prerequisite to the construction or operation of an Alaskan gas transmission system.

(1) State the estimated timetable for the applicants to obtain such approvals in the absence of expediting legislation.

(2) Is it possible or reasonable for the FPC to grant a certificate for any gas transportation system before the deliverability issues identified in subpart I, B are resolved?

(3) State any approvals required after the FPC issues a certificate of public convenience and necessity. Can the necessity of any such approvals delay or even prohibit construction of the system?

(4) Identify the possibilities for slippage and delay in the timetable for the FPC and other agency approvals?

B. Federal-State Relations

(1) Are Federal and state approval processes coordinated?

(2) Is there a potential for conflict between state land-use, coastal zone management, construction, conservation, safety and other regulatory or taxation activities and Federal requirements and permits?

(3) What is the mechanism, or what mechanism should be established, for encouraging early state input and resolving differences between Federal and state policies?

C. Judicial Review

(1) Which Federal or state agency decisions regarding the transportation of Alaskan gas are the likely subjects of judicial review? What is a reasonable estimate of the time required to complete such judicial review of agency decisions? Could construction commence while such judicial review was underway?

(2) In the absence of any legislation, what is the expected date on which construction could commence? Be completed?

D. Alternatives

Please provide estimates of the costs, environmental impacts, construction lead times and other relevant facts concerning:

(1) An alternative pipeline route from the North Slope to Fairbanks and then paralleling the Alcan Highway;

(2) Conversion of natural gas to methanol and shipment by the trans-Alaska oil pipeline or tanker or submarine; and

(3) Other possible alternatives.

E. Safety

What are the design and operation techniques to assure safe and continuous operation of Alaskan natural gas transportation systems?

1. What is the relationship between the Federal Power Commission and the Department of Transportation with respect to safety standards during gas pipeline construction and operation?

2. What are the probable and worst case estimates of injury and damage of natural gas pipeline accidents?

3. Which State and/or Federal agencies have jurisdiction over LNG terminal siting with respect to safety, distance from population centers, and ship traffic control?

4. What plans or procedures have the responsible agencies or the applicant devised to prevent or deal with LNG tanker collisions or other LNG handling accidents? What is the best available technology to minimize the risk of an LNG accident and to deal with serious LNG accidents?

5. What are the probable and worst case estimates of injury and damage that could result from an LNG tanker or terminal accident? What are the owners' liabilities for such an accident? Are existing liability laws adequate to provide compensation for all damages resulting from a probable and worst case accident?

F. Canadian Procedure

(1) What is the status of Canadian proceedings regarding the Arctic Gas and Maple Leaf projects? What is the anticipated schedule for final approvals by the National Energy Board and the Cabinet? What approvals are required by Provincial Governments? Are there other opportunities for delay of a Canadian decision, such as settlement of Canadian native claims? What is the best estimate of when the Canadian Government will reveal whether a trans-Canada route to transport Alaskan gas is acceptable to Canada?

(2) To what extent does the Canadian decision in fact await or depend upon a decision by the United States?

(3) What diplomatic channels or other mechanisms are available to assure coordination of the U.S. and Canadian approval processes? How would differences be resolved if incompatible trans-Canada routes are approved in the U.S. and Canada?

G. Treaty Status

(1) What is the anticipated initialling date for the U.S.-Canadian pipeline treaty?

(2) What are the terms of the draft treaty?

(3) Would the treaty limit or restrain the taxation or regulatory authority of state or Provincial governments?

(4) What other issues remain to be resolved in a specific protocol dealing with an Alaska-Canada transmission system?

IV. FINANCING

A. Private Capability

(1) Do private capital markets have the capability to provide the necessary funds for the construction of an Alaskan gas transportation system? Can the equity capital for this project be attracted solely on the basis of regulated revenues from natural gas consumers? What is the anticipated interest rate at which needed long-term debt capital can be raised?

(2) Assume the project encountered substantial cost overruns. Could it still be financed privately? What are the outer limits of the amount of capital that could be privately raised?

B. Subsidies

(1) To what extent are either of the applicants intending to seek Federal subsidies, loan guarantees or other forms of financial assistance to offset costs or provide cost overrun protection?

(2) Can either project be constructed and operated without any such Federal assistance?

(3) If Federal assistance to protect against cost overruns is required, what incentives can be incorporated to give the successful applicant incentives to minimize costs?

(4) If a project requiring LNG transportation is certified:
(a) How many vessels would be needed?
(b) Where would such vessels be constructed?
(c) What is the amount of subsidies or loan guarantees likely to be requested?

C. Tariffs

(1) Is it anticipated that Alaskan gas will be sold pursuant to an all-events full cost of service tariff whereby rates are automatically adjusted to reflect any costs incurred and are paid by purchasers whether natural gas is delivered or not?

(2) What is the anticipated risk that gas deliveries will be interrupted over the life of a project?

(3) Is the private financing of the Alaskan gas transportation system contingent upon state and Federal approval of such an all-events tariff?

(4) Are there precedents for an all-events tariff in other situations?

(5) What is the likelihood that state public utility commissions would approve natural gas purchases conditioned upon such tariffs?

(6) Can purchasers obtain insurance from private markets to insulate them against financial difficulties if gas deliveries are interrupted?

(7) If the risk of interruption is significant, would it be prudent to limit the percentage of Alaskan gas entering any pipeline or distribution company?

V. LEGISLATION

(1) What legislation, if any, is required to facilitate the construction of an Alaskan natural gas transportation system?

(2) What subjects should such legislation address? Consider and comment on such matters as:

(a) an expedited schedule for FPC action;
(b) a narrowing of judicial review in time and scope;
(c) establishment of a Congressional review process;
(d) congressional selection of one or more routes by directing all involved federal agencies to expeditiously grant all required permits and licenses;
(e) establishment of wellhead price ceilings and tariffs for Alaskan gas;
(f) establishment of a consolidated administrative process for the siting of LNG facilities;
(g) basis for and extent of an LNG vessel owner's liability for damages in the event of accident;
(h) provision for financial assistance to assure project construction;
(i) providing for allocation of Alaskan gas to pipeline systems in greatest need;
(j) resolution of environmental issues associated with the transportation of Alaskan gas; and
(k) other matters.

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